



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/750,316

12/30/2003

Jay Steven King

030453

1700

23696

7590

08/10/2005

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER

BRINEY III, WALTER F

ART UNIT

PAPER NUMBER

2646

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/750,316	Applicant(s) KING, JAY STEVEN	
	Examiner Walter F. Briney III	Art Unit 2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 10-16, 19-21, 25, 27 and 29 is/are allowed.
- 6) ☒ Claim(s) 7-9, 17, 18, 22-24, 26, 28 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/16/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 7-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 7 recites in lines 7-10 that *"the return path includ[es] a second multiplexer to select the common mode voltage when the blocking capacitor is used in the channel and to select the ground voltage when the blocking capacitor is not used in the channel"*. This appears to contradict the applicant's teachings set forth in paragraph 31, *"in order to eliminate the need for blocking capacitors in the left and right speaker channels, first multiplexer 42 selects 'high' bias voltage to generate a bias for microphone 16. At the same time, second multiplexer 44 selects a reference voltage as the common mode voltage,"* and the teachings set forth in paragraph 36, *"when data interface 24 is coupled to connector circuit 22A...second multiplexer 44 selects ground voltage for the return path."* For the purposes of this action, it is assumed that the second multiplexer selects the common mode voltage when the blocking capacitor is not used in the channel, and that the second multiplexer selects the ground voltage when the blocking capacitor is used in the channel.

Claims 8 and 9 are dependent on claim 7, and are rejected for the same reasons.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 23 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Adams (US Patent 6,594,366).**

Claim 23 is limited to *a method*. As indicated in the rejection of claim 17, Adams discloses detecting between an audio mode (i.e. telephone headset peripheral attached) and a data mode (i.e. radio headphone peripheral attached). In addition, the rejection of claim 17 indicated selecting different paths for the peripherals return path, where each selected path presents a particular bias associated with the peripheral device used. As the claim makes no distinction concerning how the ground and common mode voltage are related, it is fair to assume that the bias on the RIGHT/MONO path, whether different or not than the bias applied on the REC OUT path, corresponds to a ground voltage while the bias on the REC OUT path corresponds to a common mode voltage. Therefore, Adams anticipates all limitations of the claim.

Claim 26 is limited to *the method of claim 23*, as covered by Adams. When the radio headphones are detected (i.e. *when the data mode is identified*), the switch S1

(206) selects no microphone bias. Therefore, Adams anticipates all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 17, 18, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams (US Patent 6,594,366) in view of Doy (US Patent Application Publication 2003/0138112).**

Claim 17 is limited to a *system*. Adams discloses a headset/radio auto sensing jack. See Abstract. The auto sensing jack disclosed by Adams allows either a bidirectional headset including speakers and a microphone or a pair of stereo headphones to be connected to and automatically detected by a combined cellular telephone and AM/FM radio receiver. The radio stereo/mono headphones (101) correspond to a *data interface*, while the *headset* (103) corresponds to the headset as claimed as it includes a *microphone* and *speaker* as seen in figure 1. Block (210) simply corresponds to the *connector circuit* to receive either the *headset* or *data interface*. In operation, the sensing jack of Adams detects characteristics of the plug (106/108) seen in figures 1 and 3, and a control unit (208) selects the appropriate signal path for either the headset or headphones. The switch S1 (206) corresponds to a *first*

Art Unit: 2646

multiplexer as recited since it allows bias selection for the microphone of the headset. Channel REC OUT corresponds to the *channel to provide a signal to a speaker*. The switch S2 (204) corresponds to a *second multiplexer* as recited since it connects the *return path* of the jack to either a right/mono port (i.e. *ground voltage*, see below) of the radio unit (202) or the REC OUT port (i.e. *common mode voltage*, see below) of the telephone audio unit (200). Note, the return path as claimed is simply interpreted as a current path since there is no suggestion where the return path is from. Furthermore, it is inherent that each of the right/mono port and REC OUT port are suitably biased based on their target peripheral's needs. Because these biases are not discussed it cannot be determined if they are similar or different, but since the claim makes no distinction over the values of the ground and common mode voltages, this is irrelevant. It follows that the bias for the right/mono port is arbitrarily coined as a *ground voltage* while the bias from the REC OUT port is arbitrarily coined as a *common mode voltage*. As noted above, Adams does not disclose the bias voltage applied to the speaker of the headset, nor does Adams disclose the structure of the speaker driver. Therefore, Adams anticipates all limitations of the claim with the exception of *a channel to provide a signal to the speaker when the headset is connected to the connector circuit, the signal including an alternating current (AC) component and a direct current (DC) component, the DC component of the signal being approximately equal to a common mode voltage*.

Doy teaches a single supply headphone driver/charge pump combination. See Abstract. As admitted prior art, Doy suggests biasing a speaker using the arrangement

of figure 3. In particular, the bias voltage applied to the AC inputs at drivers (32) and (34) is subsequently provided to the return path of the speaker through sleeve (10) by driver (44). In this way, no DC current is drawn through the speaker. See paragraph 9. In accordance with the above conclusions concerning Adams, the bias applied to the speaker of the headset is a DC voltage that is equal to a common mode voltage.

It would have been obvious to one of ordinary skill in the art to bias the headset speaker of Adams using the single source headset speaker biasing arrangement as taught by Doy simply because Adams fails to disclose how to drive and bias the headset speaker.

Claim 18 is limited to *the system of claim 17*, as covered by Adams in view of Doy. The first switch S1 (206) corresponding to the first multiplexer as claimed is operable to select a LEFT port output from the radio unit (202). As this setting does not provide a microphone bias, it clearly corresponds to an OFF setting as claimed. Therefore, Adams in view of Doy makes obvious all limitations of the claim.

Claim 22 is limited to *the system of claim 17*, as covered by Adams in view of Doy. Adams discloses a REC OUT and RIGHT/MONO port from the telephone audio and radio units, respectively. Each of these is designed to drive a different speaker, either a headset speaker or headphone speaker. These paths generate a plurality of signals for driving a plurality of speakers, each appropriately biased and each coupled to the return path connected to socket (210). Therefore, Adams in view of Doy makes obvious all limitations of the claim.

Claim 24 is limited to *the method of claim 23*, as covered by Adams. As noted in the rejection of claim 17, Adams does not disclose the bias voltage applied to the speaker of the headset, nor does Adams disclose the structure of the speaker driver. Therefore, Adams anticipates all limitations of the claim with the exception *wherein the common mode voltage defines a voltage value such that substantially no direct current (DC) voltage load is subjected to a speaker in the device, wherein a channel for the speaker does not include a blocking capacitor*.

Doy teaches a single supply headphone driver/charge pump combination. See Abstract. As admitted prior art, Doy suggests biasing a speaker using the arrangement of figure 3. In particular, the bias voltage applied to the AC inputs at drivers (32) and (34) is subsequently provided to the return path of the speaker through sleeve (10) by driver (44). In this way, no DC current is drawn through the speaker. See paragraph 9. In accordance with the above conclusions concerning Adams, the bias applied to the speaker of the headset is a DC voltage that is equal to a common mode voltage.

It would have been obvious to one of ordinary skill in the art to bias the headset speaker of Adams using the single source headset speaker biasing arrangement as taught by Doy simply because Adams fails to disclose how to drive and bias the headset speaker.

4. **Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doy (US Patent Application Publication (2003/0138112).**

Claims 28 and 30 are limited to *a circuit*. Doy teaches a single supply headphone driver/charge pump combination. See Abstract. Doy discloses providing

AC signals to speakers as well as DC bias voltages and means for biasing the speakers based on the presence or absence of DC blocking capacitors. Prior art figure 2 depicts that when DC blocking capacitors (40) and (42) are present, the speakers are to be biased to a ground voltage. See paragraphs 6-8. Prior art figure 3 depicts that when DC blocking capacitors are absent, the speakers are to be biased to a common mode voltage equivalent to the DC bias used for the speakers. See paragraph 9. However, Doy does not disclose switching between the two above cited configurations.

Therefore, Doy anticipates all limitations of the claim with the exception of the *return path including a multiplexer to select the common mode voltage when a blocking capacitor is used in the channel and to select a ground voltage when the blocking capacitor is not used in the channel.*

It is clear that the claim simply recites selecting between two previously known configurations. According to the ruling found in the Duplan Corporation v. Deering Milliken, 197 USPQ 342 (District Court, D. South Carolina, Spartanburg Div. 1997), "there can be no invention in merely providing means to selectively alternate between one unpatentable configuration of elements and another unpatentable configuration of old elements, where there is no new or different function." Therefore, Doy makes obvious all limitations of the claim.

Claim 30 is limited to *the circuit of claim 28*, as covered by Doy. Doy discloses two drivers (32) and (40) for driving a plurality of speakers with a plurality of AC and DC signal components, each speaker being coupled to the return path by way of the sleeve (10). Therefore, Doy makes obvious all limitations of the claim.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

5. Claims 1-6, 10-16, 19-21, 25, 27 and 29 are allowed.

Claim 1 is limited to a *circuit*. Adams discloses a headset/radio auto sensing jack. See Abstract. The auto sensing jack disclosed by Adams allows either a bidirectional headset including speakers and a microphone or a pair of stereo headphones to be connected to and automatically detected by a combined cellular telephone and AM/FM radio receiver. Based on sensed characteristics of the plug (106/108) seen in figures 1 and 3, a control unit (208) selects the appropriate signal path for either the headset or headphones. The switch S1 (206) corresponds to a *first multiplexer* as recited since it allows bias selection for the microphone of the headset. Channel REC OUT corresponds to the *channel to provide a signal to a speaker*. However, figure 3 and the remaining disclosure of Adams fails to provide a teaching, suggestion or motivation to provide a return path that is shared by the microphone and speaker and includes a second multiplexer. Although it may be construed that the switch S2 (204) corresponds to a *second multiplexer*, per se, it is clear that it is not coupled to both the microphone and speaker, and thus, does not provide a return path for both. Furthermore, while it is well known for a headset to include a microphone and speaker with a common path for current return -- see, for example Paterson et al. (US Patent 5,794,163) figure 1, element 102 -- there is no suggestion to multiplex the return

path between a common mode voltage and a ground voltage. Thus, claim 1 is allowable over Adams in view of Paterson.

Claims 2-6 are dependent on claim 1, and are allowable over Adams in view of Paterson for at least the same reasons.

Claim 10 is limited to *a device*. Much like claim 1, neither Adams nor Paterson include both a first and second multiplexer, where the second multiplexer is provided in a return path for a microphone and speaker and the multiplexer selects between a common mode voltage and ground voltage. Thus, claim 10 is allowable over Adams in view of Paterson.

Claims 11-16 are dependent on claim 10, and are allowable over Adams in view of Paterson for at least the same reasons.

Claim 19 is limited to *the system of claim 17*, as covered by Adams in view of Doy. While it was shown that the multiplexer can operable connect a microphone bias to a microphone connected to port (210), it fails to make the selection based on the presence or absence of a blocking capacitor within the channel that provides a signal to the speaker of the headset. Thus, claim 19 is allowable over Adams in view of Doy.

Claims 20 and 21 are dependent on claim 19, and are allowable over Adams in view of Doy for at least the same reasons.

Claim 25 is limited to *the method of claim 23*, as covered by Adams. Adams does disclose selecting a microphone bias when a telephonic headset is present (i.e. *an audio mode is identified*), however, there is no suggestion in Adams or the other cited prior art to bias the microphone above the common mode voltage as recited. Therefore,

Art Unit: 2646

Adams anticipates all limitations of the claim with the exception of *the bias having a voltage value sufficient to bias the microphone plus the common mode voltage*. Thus, claim 25 is allowable over Adams.

Claim 27 is limited to *a circuit*. Like claim 1, there is no suggestion in Adams, Paterson or even Doy to multiplex a common return path of a microphone and speaker (let alone two speakers as recited). Thus, claim 27 is allowable over Adams in view of Paterson and Doy.

Claim 29 is limited to *the circuit of claim 28*, as covered by Doy. While Doy suggests providing a ground voltage for the return path in the presence of DC blocking capacitors, there is simply no suggestion to select a different voltage for the return path when the speaker is not connected to the interface circuit but a *data interface* is. Thus, claim 29 is allowable over Doy.

6. **Claims 7-9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.**

Claim 7 is limited to *a circuit*. Much like claim 1, neither Adams nor Paterson include a multiplexer in a return path common to both a microphone and speaker as recited. Even though it is known in the prior art to bias the return path of a speaker with a common mode voltage in the absence of a blocking capacitor and to bias the return path of a speaker with a ground voltage in the presence of a blocking capacitor – see Doy (US Patent Application Publication 2003/0138112) figures 2 and 3 – there was no suggestion in any of the above cited prior art to multiplex between these. Thus, claim 7

would be allowable over Adams in view of Paterson and Doy in the event of overcoming the rejection under 35 U.S.C. 112, 2nd paragraph.

Claims 8 and 9 are dependent on claim 7, and would be allowable over Adams in view of Paterson and Doy for at least the same reasons in the event of overcoming the rejections under 35 U.S.C. 112, 2nd paragraph.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/750,316

Page 13

Art Unit: 2646

8/5/05



SINH TRAN
SUPERVISORY PATENT EXAMINER